



AZTEC DWARF (MALE).



AZTEC DWARF (FEMALE).



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ART. I.—*An Account of two remarkable Indian Dwarfs exhibited in Boston under the name of Aztec Children.* By J. MASON WARREN, M. D. [With two plates.]

Two children have appeared in Boston so remarkable for their smallness of stature and the peculiarities of their mental faculties, that they seem to merit some public notice. I propose to state, in the following paper, simple matters of fact, without attempting any speculations in regard to them.

The children are a boy and girl, and from the appearance offered by their dentition, hereafter to be given, the former is from seven to eight years of age, the latter from four to six; allowance being made for a retarded condition of these organs, on account of the otherwise abnormal want of development of the whole body. The boy is thirty-three and three-quarters inches in height, and his weight twenty and three-eighths pounds. The girl is twenty-nine and a half inches high, and her weight seventeen pounds. Their skin is of a dark yellowish cast, lighter than what is generally attributed to the Indian in this part of the country, and somewhat darker than that of the mulatto. The hair at the middle parting rises at an inch distant from the root of the nose, but on each side a fine hair descends quite to the edge of the orbit. In the boy, it is black, coarse, and quite stiff—in the girl, wavy and curled. The eyes are large and lustrous. The nose of the boy is quite prominent, and as seen in profile somewhat arched, but seen in front it is a little flattened at the apex; the nostrils are expanded, this feature being less marked in the girl than in the boy. The line of the nostril is oblique, instead of being longitudinal as in the Caucasian race. The separation of the cartilages at the apex is not easily distinguished. The supra-orbital ridges are very prominent, the head

receding directly behind. There are no superciliary prominences or tubercles. In the boy a ridge, with its convexity towards the median line, extends from the external angular process of the frontal bone along the edge of the parietal bone, and nearly joins the elevated occipital ridge. The occipital bone is much flattened from behind forwards. The continuation of the sagittal suture through the frontal bone to the ossa nasi, corresponding with the fetal division, is also elevated into a ridge in the male, but not in the female. A circumstance of some interest is the situation of the external auditory foramen, which is much more in a line with the orbit than usual, a fact I have observed in some small heads of low intelligence. There are no indications that artificial compression has ever been used.

In both the children, the upper jaw projects considerably beyond the lower, the mouth remaining partly open in the boy from a dropping of the lower jaw, which leaves the teeth exposed.

The combination of these two circumstances, connected with a slight escape of the saliva, which may be partly attributed to the irritation caused by dentition, gives a more unintelligent expression to the face when at rest than it would otherwise have. The upper lip is large, and appears swollen as in strumous subjects. The chin is receding.

The anatomical proportions of the girl seem to be in most respects as perfect as could be desired; with regard to the boy, the following are worthy of notice. The forearm is generally maintained in a slightly bent position, and in a state of semi-pronation, permitting neither entire extension nor perfect supination, forming laterally an external obtuse angle with the arm. The little finger is malformed, being shorter than usual, its tip extending only a little beyond the middle joint of the adjacent one; the last joint is inflexible, and the natural folds on the back of the phalanges, which denote its position, are wanting. A slightly webbed appearance is given to the fingers by an increased development of the interphalangeal folds of skin. The hand itself is quite short, broad, and thick.

With regard to the organs of generation, there is a slight malformation of the penis, the urethral aperture being more open than usual, thus approximating to hypospadias. The frenum is wanting. The testicles have not descended into the scrotum, and cannot be distinguished in the groin.

The position generally assumed by these children is peculiar, and may well be compared to that of some of the Simian tribe. The head, particularly in the boy, is thrown forward, as if placed more in advance on the spine than usual. This is accompanied with a slight stoop of the shoulders, and bending of the knees, the whole attitude being well delineated in the accompanying graphic sketches by Dr. Dalton. (See Plates I. and II.) The motion is unsteady, as in the tribe of animals already referred to, the boy having a swinging gait, not unlike that of a person slightly intoxicated.

The measurements of some parts of the body and skeleton are as follows:

<i>Boy.</i> —Height		-	-	33 $\frac{1}{4}$	inches.
Spine		-	-	16	"
Arm (humerus)		-	-	6 $\frac{1}{4}$	"
Forearm		-	-	5 $\frac{1}{4}$	"
Hand, length		-	-	4	"
Femur		-	-	9	"
Tibia		-	-	7 $\frac{1}{2}$	"
Left lower extremity		-	-	17 $\frac{1}{2}$	"
Circumference of chest		-	-	18 $\frac{1}{2}$	"
" waist		-	-	17	"
" pelvis		-	-	17	"
<i>Head.</i> —Circumference over hair and					
scalp		-	-	13	"
Antero-posterior diameter		-	-	4 $\frac{1}{4}$	"
Bi-temporal		-	-	4	"
From one auditory passage to the		-	-		
other, around the forehead		-	-	7 $\frac{1}{4}$	"
Do. over top of head		-	-	8	"
Do. around the occiput		-	-	5 $\frac{1}{4}$	"
Fronto-occipital curve		-	-	8	"
Ear		-	-	2	"
Facial angle		-	-	60	"

The measures of the head were taken over the hair, and of course include the scalp, so that, if allowance be made for these, the actual measurement of the bone would be at least an inch less in the circumference of the head, and proportionately in the others.

The following is the state of dentition in the boy, being in part anomalous. The first four permanent molars, which appear between six or seven years of age, are present.

*Upper Jaw.*—2 Permanent molars.

3 of the deciduous molars—one on the left, two on the right, having lost one since he has been here.

2 Cuspidati, both probably of first set.

2 Lateral incisors, deciduous.

*Lower Jaw.*—2 Permanent molars.

2 Deciduous molars.

2 Permanent central incisors.

2 Lateral incisors.

On the left side of the lower jaw, in the place of the cuspidatus, is a large worn tooth, similar to a molar of the first set, and which might easily be taken for one; there is no corresponding tooth on the other side, the cuspidatus being wanting, and the first milk molar coming next to the lateral incisor.

The pulse, observed at different times, varied from 80 to 100, irregular in rhythm, much increased on the slightest exertion.

*Girl.*—Pulse regular, from 80 to 90. Resp. 20.

Height	-	-	29 $\frac{1}{2}$ inches.	
Spine	-	-	15 $\frac{1}{2}$	"
Humerus	-	-	6	"
Ulna	-	-	5	"
Hand	-	-	4	"
Lower extremity	-	-	15	"
				Foot, 4 $\frac{1}{2}$ inches.
Circumference of chest			19	"
"	waist		16	"
"	pelvis		16	"
Head	-	-	13	" in circumference.
Antero-posterior diameter			4 $\frac{1}{2}$	"
Lateral	"		3 $\frac{1}{2}$	"
Over top of head, from one auditory passage to the other			8	"
Ear	-	-	1 $\frac{1}{2}$	"
Facial angle	-	-	65	"
Teeth, 10 in each jaw, deciduous, normal; all perfectly sound and white.				

Third toe short, same length as fourth.

It may not be uninteresting to state that these children were vaccinated, first the boy, and eight days after the girl was vaccinated from her brother. The disease took well, and went through the usual normal stages. About three weeks after the vaccination, both were attacked on the same day with chicken pox, which pursued a perfectly regular course, and was unattended with any strongly-marked constitutional symptoms.

A question naturally arises to an observer first visiting these beings, whether they belong to the human species, and it is only after the eye becomes accustomed to their appearance that the brotherhood is acknowledged.

I will not here enter into a description of their appearance: it is rather agreeable, in a degree intelligent, and with nothing repulsive, as would be expected in the usual abnormal specimens of the human race. They are both quite apt to comprehend what is said to them, particularly if accompanied by appropriate gestures, although any continued conversation evidently could not be understood. They are, in fact, without any language of their own. They seem to acquire words readily, and since their sojourn in Boston, have learned to repeat a number, such as "Papa," "Mamma," "Ellen," "Take care," &c., and evidently are capable of instruction to a limited extent. They are quite imitative, and in this respect nothing escapes them. With regard to any communication by signs or language which they may have with each other, it appears to be at present not much greater than what might be expected from two intelligent individuals of the canine race, although in the expression of their feelings they occasionally make use of an unintelligible jargon of

sounds together, which by some might be interpreted as an attempt at language.

As to their habits, they are those of children of two or three years of age, requiring the care of superiors to feed and clothe them. The propensity to constant feeding may also be considered as remarkable, and although at present under the intelligent management of the person who has them in charge, their diet and regimen have been reduced to a system; yet, if left to their own inclinations, they would undoubtedly keep themselves filled with food. With the exception of a catarrhal affection, which might be expected from their exposure to a cold climate, their health seems good; and their strength, as manifested by an almost incessant movement from morning till night, is not to be complained of.

The most remarkable point of interest in these children is the size of the head, and in this respect, considering the amount of intelligence, they are the smallest which have come under my observation. For the sake of comparison, I propose to give the measurements of some very small heads, those belonging to infants, idiotic children, and also the heads of the quadrumana, who most nearly approximate to man; this method, apparently, being the best adapted to place the present specimens in a striking point of view.

It has already been stated that the heads of these children are about thirteen inches in circumference, and if the hair and scalp be allowed for in the measurement, an inch may be deducted, making them twelve. The antero-posterior diameter is four and one fourth, bi-temporal about four.

The head of an infant at birth was as follows:—

Ant.-post. diameter	-	-	-	-	4 $\frac{1}{4}$ inches.
Bi-temporal	-	-	-	-	3 $\frac{1}{4}$ "
Circumference	-	-	-	-	13 $\frac{1}{4}$ "
Over top of head from ear to ear	-	-	-	-	8 "
Occipito-frontal	-	-	-	-	8 $\frac{1}{4}$ "

A girl four and a half years old—

Circumference	-	-	-	-	20 "
Occipito-frontal	-	-	-	-	13 "
Over head from ear to ear	-	-	-	-	13 "

A boy nine years old—

Twenty-two inches in circumference.

Head of an idiot child from Spurzheim's collection—

Circumference	-	-	-	-	14 inches.
Ant.-post. diameter	-	-	-	-	5 "
Bi-temporal	-	-	-	-	3 $\frac{1}{4}$ "
Over top of head	-	-	-	-	7 $\frac{1}{2}$ "

Head of the remarkable dwarf Babet Schreier, of whom a description will be given below, thirteen inches, four lines, measured over the most prominent parts of the forehead and occiput.



Idiot boy, ten years old, with a small head, forty-eight inches high—

Circumference of head, over hair,  $15\frac{3}{4}$  inches.

Young chimpanzee, twenty-six inches high—

Circumference of head, 13 inches.

Head of adult chimpanzee—

Ant.-post. diameter - - - -  $4\frac{1}{2}$  inches.

Over top of head from ear to ear - - 8 "

Occipito-frontal - - - -  $7\frac{1}{2}$  "

Circumference - - - - 13 "

Young orang-outang—

Circumference - - - - 13 inches.

Ant.-post. diam. - - - -  $4\frac{1}{2}$  "

Lateral " - - - -  $3\frac{3}{4}$  "

Curve over top of head from ear to ear - 8 "

Occipito-frontal curve - - - -  $7\frac{1}{2}$  "

For the further illustration of this point, we will adduce the instance recorded by Pinel, in his "Treatise on Mental Alienation," as exemplifying "that degree of idiocy which is the extreme limit of human degradation, in which even instinct no longer exists." This sketch is accompanied by "a design of the cranium of the female idiot, who was at the Salpêtrière in 1805." She resembled the sheep both in her tastes, her mode of life, and the form of her head. She had an aversion to meat, and ate with avidity both fruit and roots; drinking nothing but water. Her demonstrations of sensibility, of joy and grief, were limited to the words, imperfectly articulated, "Bé," "Matate." She would alternately flex and extend the head, and rub it against the breast of her nurse. If she desired to resist or express her dissatisfaction, she sought to strike with the crown of the head inclined. She was extremely choleric, and many times I saw her in the bath, making efforts to get out, and repeating, in an acute tone, "Bé, bé, bé." The back, loins, and shoulders were covered with flexible black hair from one to two inches in length. She could never be induced to sit in a chair or upon a bench, even to take her food. No sooner was she seated than she slipped down upon the earth, and was accustomed to sleep with her extremities closely gathered about her after the manner of animals. Pinel examined this case, and furnished us with the dimensions of the head of this idiot compared with those of the cranium of a little girl of seven years.

		Idiot of 11 years.	Girl of 7 years.
Length of cranium	- -	5 in. 11	7.08
Breadth	- - - -	3 " 53	5.11
Depth	- - - -	5 " 11	6.29

The resemblance these children bear to some of the lower order of animals, especially those of the Simian tribe, is quite remarkable, and we are reminded of Lamarck's theory of the gradual development of the human being from the

lower created orders, and the transformation of quadrumana into the bimana. In regard to their relation to the quadrumana, we observed in the boy an approximation to the frontal crest of the orang; the supra-orbital ridges, and the parietal and occipital crests of the adult chimpanzee; the projecting jaws, the elongated forearm and its semi-flexed position; finally, the stoop of the whole body, with the air and appearance, forcibly reminds us of the monkey.

It has been thought that, in connection with the description of these children, it will not be found uninteresting to present brief sketches of two or three of the most celebrated dwarfs of whom history furnishes an authentic account, chiefly with a view to display their intellectual development.

**BABET SCHREIER.**—This dwarf was six inches in length at birth, and at the age of upwards of seven years, measured only twenty-three. Her weight at birth was a pound and a half; at the age just mentioned, it was eight and a quarter pounds.

"The intellectual functions of this girl are very little developed for one of her age; she has very little more intelligence than a child four years old. Her disposition is good; she is inquisitive, and has considerable power of imitation. If instructed in the principles of education, she would probably learn with ease. She is much more disposed to mirth, and more docile in the afternoon than in the forenoon, and testifies her satisfaction by a more joyful air, and greater pliancy of character.

"Being unaccustomed to fix her attention or to listen to what is said to her, she comprehends with some difficulty, and her judgment, for want of exercise, is slow and perplexed.

"She did not begin to speak until four years of age; but she understands all that is said to her. She actually endeavours to express her ideas, which seem to flow in rapid succession in a kind of German jargon to which she is accustomed, and accompanies her attempts with many gestures. I am convinced, by careful observation, that this little being enjoys the same natural, moral sensibility as any other individual."

We find, in the "*Histoire des Anomalies*" of Saint Hilaire, an historical account of some remarkable dwarfs, and particularly of the celebrated Jeffrey Hudson, Bébé, and Borwilaski.

**JEFFREY HUDSON** was born about the time of Charles I., at Oakham, England; at the age of seven or eight, he was presented in a pie to the queen, his height then being eighteen inches. This stature he retained till about thirty, when he suddenly increased to three feet nine inches. In his character as a courtier and a man, he seems to contradict the inferences of writers of the following ages, that dwarfs "are beings more degraded in the moral than in the physical capacity." For he finally became a captain in the royal army, and after the Restoration returned to England in 1682, where he died at the age of sixty-three years, accused of treason. Perhaps it may not be uninteresting to medical men, in the present state of medical ethics, to find that about 1636 he was sent to *France to procure a midwife for the queen.*

**BEBÉ.**—A sketch of Bébé will be found far more interesting in a scientific point of view.—Nicholas Ferry, commonly called Bébé, was born in Novem-

ber, 1741, of parents of the ordinary stature; he was born at the seventh month, after a very remarkable pregnancy; at birth, he measured seven or eight inches, and weighed less than a pound, yet the labour lasted forty-eight hours. It is said that he was carried to church on a plate covered with tow, and a wooden shoe was his cradle. His mouth was too small for the nipple of his mother, and therefore he sucked a goat; he had the small-pox when six months old; at eighteen months he began to speak, but was more than two years before he could walk. At five years of age, he was carefully examined by the physician of the Duchess of Lorraine; he then weighed nine pounds seven ounces (French), and his height was about twenty-two inches, being formed like a young man.

His intellect is represented as feeble; the utmost that could be taught him being to dance and beat time. Of reading, or religion, he had no conception, and after a separation of a fortnight he did not know his mother. He was susceptible of passions, such as desire, anger, and jealousy, and his discourse was without connection, and his ideas confined. At the age of fifteen, he was still lively, gay, and *débonnaire*; but puberty wrought a serious change, his health declined, his features lost their smile, and, with every appearance of premature old age, he died June 9th, 1764, at the age of twenty-two and a half.

*Skeleton of Bébé.*—Ossification perfect.

Cranium greatly depressed between the two parietal and the occipital projections.

Nose projecting.—Nasal bones very large at their lower extremities.

Great toe much elongated.

The principal dimensions of the skeleton were—

Total height	2 feet, 9 inches, 6 lines.
Length of upper extremities	1 foot, 2 " 9 "
"    humerus - -	7 " 3 "
Hand - - - -	3 " " "
Lower extremity - -	1 " 4 " 6 "
Femur - - - -	9 " " "
Foot - - - -	4 " " "

BORWILASKI was a Pole, and, like Bébé, of the court. Born at the full time, he was distinguished for his wit and learning. He could read, write, and speak both French and German. The writers of his time call him a perfect but diminutive, and Bébé an imperfect man. When twenty-two years old, Borwilaski was twenty-eight inches high; at this age he was married, and had afterwards several children, well-formed, and of the usual size. The paternity of Borwilaski was not received by all without credulity, even in his own days, and it sometimes gave rise to pleasantries which were supported with courage and patience.

Other dwarfs are mentioned; but I will only refer to the betrothed of Bébé, Theresa Souvray, of about his own age, but with whom his marriage was prevented by death. At the age of seventy-three, she was exhibited in Paris,

appeared chatty and gay, and danced with her sister, two years older, the height of the latter being only three and a half feet.

How far can these children, judging not only from their general size, but also from the smallness of the head, be supposed idiotic? Esquirol, in his "Treatise on Insanity," Am. ed. p. 466, defines the idiotic character at some length, but in a subsequent page does not consider it to depend upon any particular volume or form of the head, notwithstanding it is proper to observe that the smallest heads appertain to the most degraded class of idiots. And again, Gall, in the "Anatomy and Physiology of the Nervous System," has figured two very small crania, and limits intelligence to crania which are only from fourteen to seventeen inches in circumference.

In the report of Dr. Howe, before the Massachusetts State Legislature in 1850, two idiots are compared; the one with the smallest capacity for brain was decidedly more bright, quick, and intelligent than the other. The instance recorded by Pinel has already been given.

From a careful comparison of the observations of different authors with those we have ourselves made and here recorded upon these children, we are disposed to believe that, although of very low mental organization, they cannot be pronounced idiots of the lowest grade. Their senses of sight, hearing, smell, taste, and touch, as well as that of tact, seem complete. Their degree of intelligence has, in our opinion, decidedly improved since their arrival in Boston; and this capacity for education appears far greater than in the lowest idiots.

We need hardly advert to the idea that these singular creatures belong to any peculiar tribe of dwarfs; for it is a fact universally allowed by physiological writers, and expressly laid down by Geoffroy St. Hilaire, that dwarfs are impotent with individuals of ordinary height, and even among themselves, as proved by the experiments made by Catharine de Medicis and the Electress of Brandenburg: "Les plaisirs de l'amour les énervent promptement, et plus souvent leur deviennent funestes. C'est en partie à cette cause que, d'après quelques auteurs, il faut attribuer la vieillesse anticipée, et la mort de Bébé." And in a note he says, "Borwilaski is, at least to my knowledge, the only dwarf who is an exception to this rule. Is an exception in such a matter sufficient to destroy the rule? I can only refer to what has been said above of the paternity of Borwilaski."

[In order to explain some observations in the preceding paper which would otherwise appear obscure, it should be remarked that the children who are the subjects of it were exhibited in Boston as belonging to a race of dwarfs, the descendants of priests from an hitherto undiscovered city in Central America. The peculiar form of their heads, so exactly represented in the Travels of Mr. Stevens, as carved on some of the monuments in that region, and those on some of the Egyptian relics, seemed to favour this idea, as it was supported by a most ingenious and romantic story, descriptive of their discovery and transportation to America. It is now pretty well understood that they belong to some of the mixed tribes of Indians inhabiting Central America, and we hope hereafter to procure some exact details as to the peculiarities of their parents.]

ART. II.—*Case of Gunshot Wound in Left Axilla—Ligature of Left Subclavian, and subsequent Ligatures of Brachial and Subscapular Arteries.*

By JOHN WATSON, M. D., Surgeon to the New York Hospital. Reported by WILLIAM H. MORTON, M. D., of Paterson, N. J.

Nov. 25th, 1850. Post Van Pelt, of Paterson, N. J., boy, aged fourteen, of good constitution, was accidentally shot in the left axilla. The shot, to the number of twelve or fifteen, entered the axilla nearly at a right angle with the trunk of the body, and separately made but little external laceration. I first saw the patient three-quarters of an hour after the receipt of injury. There had been profuse arterial hemorrhage, which had ceased spontaneously.

*Appearance of patient.*—Skin cold, pale, and shrunken; pulse in sound extremity feeble and intermitting, and no perceptible pulse in injured arm.

*Treatment.*—Cold applications, and an anodyne at night.

26th. Patient has passed a comfortable night. Pulse in the sound arm 120; and, if not deceived by the pulsation of my own fingers, I detect a slight pulsation at the wrist of the injured extremity. The whole shoulder, arm, and vicinity of wound are much swollen. Cold dressings continued.

28th. Pulse 100; pulsation in the injured arm increasing slightly in regularity and fullness; and the swelling has somewhat subsided. The patient complains of no pain. Continue cold dressings.

29th. Much about the same; bowels opened by enema.

Dec. 3d. Patient improving. The swelling has nearly subsided. The wound is suppurating. The pulse on sound side soft, and beats at 110. Circulation in injured extremity becoming more regular each day. The patient complains of pain in hand and forearm. Ordered poultice of linseed meal to wound.

4th. Having left patient's house but a few steps, I was called back, and found considerable arterial hemorrhage, which was controlled at once by pressure over the subclavian artery. During the next thirty-six hours, the hemorrhage recurred five or six times, some four or five pints of blood being lost; which hemorrhages always yielded to compression on subclavian artery. Cold dressings ordered to be reapplied.

5th. Pulse on the sound arm 120, and hard; and faint pulsation in the injured arm. I noticed a small tumor forming in axilla of injured side, which proved to be a false aneurism. Tumor increasing rapidly; by night being as large as a goose's egg. On consultation, it was decided to ligature the subclavian artery.

6th. Having requested the aid of Dr. Watson, he proceeded to ligature the subclavian artery beyond the scaleni, while the patient was under the influence of ether. At this time the pulse at the wrist was imperceptible, but the aneurismal swelling in the axilla beat strongly. The steps of the

operation need not be detailed further than to say that, before securing the subclavian, the external jugular vein, and a small ascending vessel, probably a branch from the acromial artery, required the application of a ligature; and that very little blood was lost.

I visited the patient four hours after the operation, and found the aneurismal tumor and the swelling in the arm sensibly diminished, and no pulsation to be perceived. Pulse in sound arm 120. Patient in good spirits.

8*th*. Aneurismal tumor burst and discharged a quantity of coagula and semi-fluid blood.

9*th*. Removed the outer dressings from wound made in operation. There was some discharge of grumous blood from this, and no indication of union. Pulse about 130, and hard, with a jerking feel; bowels moved by enema.

12*th*. Patient again improving; pulse better; respiration good; and less excitement about the vessels of the neck. There was a venous hemorrhage to-day from the incision above the clavicle, which ceased spontaneously, and did not return.

15*th*. Again removed dressings; wound looks healthy. The ligatures on the superficial vessels, and the main ligature, remain firm. Pulse 110, and softer.

18*th*. Both wounds suppurating finely. Strong hopes of patient. Four hours after my first visit a profuse hemorrhage occurred. The flow having ceased, its point of issue could not be ascertained, nor could I decide as to whether it was venous or arterial.

19*th*. The hemorrhage again occurred; it was now clearly arterial, and from the original seat of injury in the axilla; it ceased spontaneously. Pulse 120, and jerking.

20*th*. Dr. Watson, being summoned from New York, arrived just in time to witness a third recurrence of the arterial hemorrhage, which was tremendous. Not being able to control it by pressure, and the case admitting no delay for the administration of ether, he made an incision two and a half inches in length below the clavicle in the course of the subclavian artery, and through the pectoral muscles into cavity made by injury in axilla. The seat of hemorrhage not being readily discovered, the cavity was stuffed with pieces of sponge, and an incision about three inches long made in arm over brachial artery, which was found open, but flaccid and dry. It was then tied. The sponges were next carefully removed piece by piece, and we discovered that the repeated hemorrhages *subsequent* to the ligature of the subclavian were not from the lacerated brachial artery on the distal side, but from the channel of communication between the posterior scapular and subscapular arteries, which latter, with its accompanying nerve, lay gaping and much enlarged at the bottom of the cavity. The subscapular artery, which was still bleeding, was finally secured. The axillary artery was found to have been much disorganized by the original injury. A number of shot, lying loose, were scraped out with the other contents of cavity, which now remained dry.

Patient lost by this last hemorrhage nearly two quarts of blood without inducing syncope. After the operation, bandages were placed on the lower extremities, and stimulants administered with the view of supporting the circulation and inducing a vigorous reaction.

21st. Patient gradually sinking. Stimulants freely and frequently administered.

22d. Patient died this morning, having never rallied from last profuse bleeding. Previous to death, the arm showed symptoms of gangrene.

*Autopsy.*—The post-mortem examination was confined, by request of the friends of the patient, to the incision above the clavicle. The ligature on the subclavian artery was found loose, and the vessel obliterated some distance each way. (The superficial ligatures had come away previously on the 20th.) Union had taken place to a large extent at the seat of the operation, although there was a sinus along the course of the artery, terminating at the original seat of injury in axilla. Arm extensively gangrenous.

*Remarks.*—This case presents analogous features to one of Dr. Mott's, with the exception of the difficulties arising subsequent to the ligature of the subclavian artery—difficulties caused by the enormous sloughing process in the original wound. We would not have been justified in enlarging the wound, and tying both ends of the injured axillary artery, and the result of the case shows that such a procedure would have been of no service. The diagnosis was at first difficult, both as to vessel and extent to which the vessel was injured. Certainly the indications pointed out the axillary artery; but might not the injury of a minor vessel, with the profuse hemorrhage and shock to system, have produced the same symptoms? Again, hemorrhage had ceased upon my seeing patient, and pulse returned in a few hours (but feebly and intermittingly, indeed). And would ligatures upon both ends of bleeding vessel have prevented the terrible disorganization of the parts?

It will be perceived that the secondary hemorrhage prior to the operation took place on the 4th of December, eight days after the receipt of injury; and one day intervened between the first hemorrhage and the ligature of the subclavian. This delay was unavoidable. It will also be remarked that, during all these repeated bleedings, even up to the last operation, the pulse varied but little; and patient's strength, courage, and spirits remained good. Both operations were performed under great deficiency of light, so much so that the last required the aid of a candle. The venous hemorrhage, mentioned as occurring on the 12th, probably arose from the divided end of the external jugular, from loosening of the ligature.

Guthrie says that, "when there is a wounded artery which has been duly secured above and below the wound, or when there is an artery in a state from which it may be feared blood may flow, from any or whatsoever cause, the patient should never be allowed to stir from the recumbent position until the external wound has healed;" a precept which was most reli-

giously observed in this case. The last hemorrhages were brought on by the slight exertions made in micturating.

The "operation" on the subclavian ought to be considered successful, so far as that vessel was concerned, the patient being carried off by causes not altogether unforeseen, but unavoidable and totally unconnected with the ligaturing of the vessel. Dr. Watson says, "he regrets we did not resort to transfusion of blood immediately after checking the flow at the last operation." It certainly was worthy of trial, but I have some doubts as to the benefits that would have been derived from it; for the circulation having been but feeble in the injured arm from the day of the injury, and that circulation being still further diminished by last operation, leaving only the small acromial and the capillary circulation for the nourishment of the arm, gangrene was to be expected, and it did make its appearance; to check which, had the patient survived, would probably have required amputation at the shoulder-joint.

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ART. III.—*Observations on the Dumb-Bell Urinary Deposit.* By JOHN BACON, JR., M. D. (Read before the Boston Society for Medical Observation, December 16th, 1850.)

THE remarkable crystalline bodies, first described by Dr. Golding Bird, in 1842, under the name of *dumb-bells* (see *Guy's Hospital Reports*, vol. vii.), are among the rarer forms of urinary deposit. Their nature has never been satisfactorily determined. They always occur alternately with the octohedra of oxalate of lime, or mixed with them; and were regarded by Dr. Bird as zeolitic crystals of that salt. The term *zeolitic* is derived from the zeolites, a family of minerals which frequently form compact spherical masses made up of radiating acicular crystals. In the *American Journal of the Medical Sciences*, for July, 1850, is an article on the dumb-bells, by Dr. Frick, of Baltimore, in which he endeavours to prove that they consist of uric acid. The question as to their chemical composition is not only one of scientific interest, but of practical importance in its bearing on the treatment of oxaluria, an affection which is probably much more frequent than is generally supposed. A fine specimen of the deposit, for which I am indebted to Dr. Dalton, of Boston, has enabled me to make a microscopic examination, and a partial analysis.

In this specimen, the dumb-bells are mixed with octohedral crystals of oxalate of lime, generally very small, and some epithelium cells. They were prepared for examination by allowing the urine containing them to stand an hour or two, as the deposit subsides slowly; and after pouring off nearly the whole